

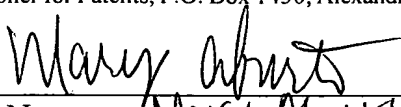
JOINT INVENTORS

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**APPLICATION FOR
UNITED STATES LETTERS PATENT**

S P E C I F I C A T I O N

TO ALL WHOM IT MAY CONCERN:

Be it known that we, **CLARK WOODY**, a citizen of the United States, residing at 1585 N. Mackinaw, Pinconning 48650, in the County of Midland and State of Michigan, and **LARRY ZIEKE**, a citizen of the United States, residing at 1108 Airfield, Midland 48640, in the County of Midland and State of Michigan; have invented a new and useful **END STOP FOR A RECLOSABLE POUCH AND METHOD OF PRODUCING SAME**, of which the following is a specification.

Richardson et al. U.S. Patent No. 5,405,478 discloses a method for applying end stops as bags are being manufactured before the bags are separated from one another. The end stops on adjacent bags are formed from a single length of plastic tubing that is secured to zipper tape carried by a plastic web forming bag walls.

Morgan U.S. Patent No. 5,442,837 discloses a thermoplastic bag having a zipper secured to a plastic web. The zipper includes flanges at ends of the bag having an increased height, thereby providing for adequate plastic material to form integrated end stop seals that interfere with removal of a slider from the zipper. The end stop seals are sufficiently strong such that additional end clips or clamps are not required.

Dobreski et al. U.S. Patent No. 5,924,173 discloses end stops in the form of plastic pins or posts having enlarged heads and wherein the pins further include linear portions that extend through ends of first and second closure strips. The enlarged heads retain the end stops on the closure strips and interfere with removal of a slider therefrom.

Summary of the Invention

According to one aspect of the present invention, a reclosable pouch comprises a closure assembly secured to pouch walls. A slider is placed on the closure assembly and is movable between open and closed positions. An end stop is disposed at an end of the closure assembly. The end stop includes a first portion secured to the pouch adjacent the closure assembly and a second portion extending from the first portion and deflected into secure engagement with the pouch.

According to another aspect of the present invention, a method of producing an end stop for a reclosable pouch includes the steps of applying a first portion of a plastic member to a surface of the pouch proximate a closure assembly and forming an end stop by attaching a second portion of the plastic member to the pouch at a position proximate a side portion thereof.

Other aspects and advantages of the present invention will become apparent upon consideration of the following detailed description and the attached drawings, in which like elements are assigned like reference numerals.

Brief Description of the Drawings

FIG. 1 comprises a side elevational view of a reclosable thermoplastic storage pouch according incorporating an embodiment of the present invention;

FIGS. 2 and 3 comprise sectional views taken generally along the lines 2-2 and 3-3, respectively, of FIG. 1;

FIG. 4 comprises a fragmentary plan view of the storage pouch of FIG. 1; and

FIGS. 5A and 5B are sectional diagrammatic views of a clamping apparatus during the process of forming end stops according to the present invention.

Description of the Preferred Embodiments

Referring to FIGS. 1 and 2, a reclosable pouch in the form of a thermoplastic storage bag 20 comprises a first body portion 22 and a second body portion 24 adjacent the first body portion 22. The first body portion 22 and the second body portion 24 are joined to one another at first and second side edges 26, 28 and may be integral with one another at a bottom, folded edge 30. Alternatively, the body portions 22 and 24 may not be integral with one another and may be joined to each other at the side edges 26, 28 and bottom edge 30 by any suitable means and/or process. An opening 32 (FIGS. 1 and 2) is disposed at a top portion 34 of the bag 20. A closure assembly 36, comprising first and second closure elements 38 and 40, respectively, is also disposed at the top portion 34 of the bag 20. A slider 50 straddles the first and second closure elements 38 and 40 and is prevented from being pulled upwardly off of the bag 20 across the closure assembly 36 by slider retention rails 52 and 54. End stops 56a, 56b and 58a, 58b are disposed at ends 60 and 62 of the closure assembly 36 as noted in greater detail hereinafter and prevent the slider 50 from being pulled sideways off of the bag 20 at side edges 26, 28.

Referring next to FIG. 3, during production of bags, at least one, and preferably two flanges 64, 66 are extruded or otherwise suitably formed and secured on lower (as seen in FIG. 3) portions of the closure elements 38, 40 below the rails 52, 54, respectively. The flanges 64, 66 are preferably made of a suitable thermoplastic, such as an olefin including homopolymers or copolymers of polyethylene or polypropylene. Also

preferably (although not necessarily) the flanges 64, 66 extend continuously from the end 60 to the end 62 across the full width of the bag 20. Alternatively, one or both of the flanges 64, 66 may be preformed and post-applied by adhesive or any other securing means to any portion of the bag and/or one or both flanges 64, 66 may be discontinuous across the width of the bag. In the latter case, the discontinuous flange(s) 64 and/or 66 are preferably positioned at the ends 60, 62. In any event, base portions 70, 72 of each flange 64, 66 are secured as noted above either intermittently or continuously to the closure elements 38, 40 or other portion(s) of the bag. In the illustrated embodiment, free ends 74, 76 of the flanges 64, 66 are disposed opposite the base portions 70, 72 and comprise enlarged or bulbous head portions. Referring also to FIGS. 5A and 5B, the end stops 56 and 58 are each created by deflecting the free ends 74, 76 into secure engagement with portions of the closure elements 38, 40 or other bag portions at the ends 60, 62. This is preferably accomplished during bag production by bringing heated clamping tools 80, 82 into simultaneous contact with the free ends 74, 76 and advancing the heated clamping tools 80, 82 toward each other until the bulbous heads of the free ends 74, 76 are heat staked or otherwise fused to the closure elements 38, 40 or other bag portions at the ends 60, 62, as seen in FIG. 2. This fusing may be accomplished by simple transfer of heat from the heated clamping tools to the free ends 74, 76 and/or by otherwise securing the free ends 74, 76, such as by adhesive, melted thermoplastic, or the like.

The fusing or other attachment of the free ends 74, 76 preferably is undertaken over a limited span at the ends 60, 62 so that travel of the slider 50 is only inhibited at such ends. More particularly, the slider 50 includes feet 90, 92 (visible in FIGS. 2 and 3) that are interfered with by the bulbous ends of the flanges 64, 66 (see FIG. 2). This interference prevents the slider 50 from being easily removed from the bag 20. Referring to FIG. 3, at locations away from the ends 60, 62, the free ends 74, 76 are disposed out of interfering relationship with the feet 90, 92 so that the slider 50 is free to move along a slider travel path at locations intermediate the ends 60, 62.

Industrial Applicability

The pouch described herein advantageously includes reinforced end stops created by attaching a plastic member, comprising a first portion and a second portion, to pouch walls. The first portion of the plastic member is secured to the pouch adjacent a closure assembly and the second portion of the plastic member is deflected into secure engagement with the pouch at a position proximate an end thereof. The first portion is joined to the second portion by an intermediate portion that may be (but need not be) narrowed as compared to the first and second portion

It should be noted that the flange(s) 64, 66 may be replaced by flange(s) of different cross-sectional shape and/or material, if desired. Further, a single flange may be provided having a first portion secured to only one side of the bag 20, and may further have a second portion deflected into secure engagement with a portion of the bag at ends of the bag to provide end stops. Still further, the first and/or second portions may continuously extend across an entire width of the bag 20, or either may be discontinuous in the sense that the first and/or second portion may be of limited length relative to the bag width dimension.

Numerous modifications will be apparent to those skilled in the art in view of the foregoing description. Accordingly, this description is to be construed as illustrative only and is presented for the purpose of enabling those skilled in the art to make and use the invention and to teach the best mode of carrying out same. The exclusive rights to all modifications that come within the scope of the appended claims are reserved.